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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/755,516	01/04/2001	Eric W. Schieve	AMAT-5320	5078

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APPLIED MATERIALS, INC.
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EXAMINER

MOORE, KARLA A

ART UNIT	PAPER NUMBER
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1763

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DATE MAILED: 10/21/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/755,516

Applicant(s)

SCHIEVE ET AL.

Examiner

Karla Moore

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 August 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 07 August 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Drawings

1. The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on 08/07/02 have been received. A proper drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The correction to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,076,205 to Vowles et al. and further in view of U.S. Patent No. 6,022,185 to Mokuo.

4. Vowles discloses the apparatus substantially as claimed. The apparatus for processing multiple semiconductor wafers comprises: a transfer chamber (16), a first processing chamber (24) in fixed relation to the transfer chamber and having a wafer holding platform (56, 58) with a center, a second processing chamber (26; column 2, rows 57-61) mounted in adjustable relation to the transfer chamber and to a first chamber having a second wafer holding platform and a robot (36) rotatably mounted within the transfer chamber. The first and second chambers are closely spaced self-contained units supported in a cantilever fashion from a wall of the transfer chamber (see Figure 1), the chambers and the platforms being adapted to simultaneously process wafers using edge purging, due to alignment mechanisms (column 3, row 60 through column 4, row 2) used to accurately place the wafer on the holding platform. The apparatus further comprises a mechanism (74,76,78, 80,82; column 3, rows 56-62) for adjustably mounting the second chamber in relation to the first chamber and to the transfer chamber, wherein the mechanism comprises a plurality of position adjustments (84,86,88) for the second chamber (column 3,

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rows 65-68), a first plate (70) fastened to the wall of the transfer chamber and a second a second plate (72) fastened to the wall of the second chamber. Vowles et al. also teach the use of slit valves adjacent the transfer passageway for sealing the controlled environments within the transfer chamber and the first/second chambers (column 2, row 68-column 3, row 4 and column 4, rows 3-9). Vowles discloses additional processing chambers (22,28) corresponding respectively to the first and second chambers noted above, which are mounted relative to the load-lock chamber in ways respectively like those of the first and second chambers.

5. However, while Vowles et al. do disclose a robot rotatably mounted within the transfer chamber, they fail to teach the use of a robot having first and second wafer holding arms spaced parallel to each other for inserting a pair of wafers simultaneously into the first and second chambers.

6. Mokuo discloses a substrate rotatable transferring device including two parallel support arms (Figure 3, 20; column 3, rows 25-33) for the purpose of transferring plural wafers in and out of chambers at the same time to thereby increase throughput (column 1, rows 59-62).

7. It would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to have included two support arms in Vowles et al. in order to transfer plural wafers in and out of chambers at the same time to increase throughput, as taught by Mokuo.

8. Claims 4-5, 7-9 and 13-19, 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vowles et al. and Mokuo as applied to claims 1-3 above, and further in view of U.S. Patent No. 5,611,861 to Higashi.

9. Vowles et al. and Mokuo disclose an apparatus for processing multiple semiconductor wafers substantially as claimed and as described above.

10. However, Vowles et al. and Mokuo fail to teach the use of a bellows assembly sealed between a first plate and second plate and a hermetically sealed wafer passageway between the chambers nor are means for securing the relative positions of the plates once adjustments thereto have been effected disclosed.

11. Higashi teaches the use of a coupling system comprising bellows assembly (Figures 4A and 4B, 17a and 17b; column 3, rows 46-50) and means for securing (column 7, rows 4-11; column 9, rows 25-

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27) the relative positions of the plates for the purpose of connecting and disconnecting the valves, allowing communication between each of the process chambers and the transfer chamber in a hermetical sealed fashion.

12. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a bellows assembly and means for securing the relative positions of the plates in Vowles et al. and Mokuo in order to connect and disconnect the valves communicating with each of the process chambers and the transfer chamber in a hermetical sealed fashion as taught by Higashi.

13. With respect to claims 22 and 23, the arms (Figure 3, 20; column 3, rows 25-33) of Mokuo are spaced apart and vertically aligned (where "aligned" has been defined by Merriam-Webster dictionary as "the proper positioning or state of adjustment of parts in relation to each other"). In Mokuo, the arms are vertically aligned so as not to interfere with one another during extension. Additionally, the arms are extendable along respective, longitudinal, parallel axes.

14. Claims 6, 10 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vowles et al., Mokuo and Higashi as applied to claims 4-5, 7 and 9 above, and further in view of U.S. Patent No. 4,854,611 to Press.

15. Vowles et al., Mokuo and Higashi (the prior art) disclose the claimed apparatus substantially as claimed and as described above.

16. However, the prior art fails to disclose a mechanism for adjustably mounting the second chamber, wherein the first and second plates are hinged together along a bearing line such that position adjustments thereto can be made in the "X", "Y" and "Z" directions and for thereafter rigidly fastening in place such position.

17. Press discloses a bellows assembly comprising a first plate (10) and a second plate (11) with a bellows element (12) sealed between the plates providing for relative movement in the "X", "Y" and "Z" directions (Figures 1A-C) for the purpose of accommodating the three categories of strain to which a bellows assembly can be subjected and to which it is required to accommodate—axial travel, misalignment and angular travel (column 2, rows 59-64). Press further discloses means for rigidly

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fastening in place such position for the purpose of minimizing the possibility of bellows failure in use (column 1, rows 31-33).

It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided relative movement in the "X", "Y" and "Z" directions in the prior art for the purpose of accommodating the three categories of strain to which a bellows assembly can be subjected and to which it is required to accommodate as taught by Press and to have provided means for rigidly fastening in place such position in the prior art for the purpose of minimizing the possibility of bellows failure in use as taught by Press.

Response to Arguments

18. Rejections based on 35 U.S.C. § 112, second paragraph are withdrawn.

19. However, Applicant's remaining arguments filed 08/07/02 have been fully considered but they are not persuasive.

20. Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

21. With respect to claims 1-3 which were found to be unpatentable over Vowles in view of Mokuo, Examiner points out column 2, rows 57-61, where Vowles discloses a first processing chamber (26, 28) mounted in adjustable relation to a transfer chamber (16) and to a first chamber (22, 24). Attention is also directed to Mokuo Figure 3 and columns 3, rows 25-33, where Mokuo discloses a robot having first and second wafer-holding arms spaced parallel to each other for inserting a pair of wafers simultaneously into the first and second chambers and for placing the wafer accurately centered over the respective platforms. Vowles is relied upon for disclosing the spacing and associated alignment of the platform centers (see column 3, row 51- column 4, rows 2). It is noted that because the robot arms are located in the transfer chamber in both Vowles and Mokuo, movement and alignment of the second wafer-holding platform with respect to the transfer chamber necessarily implies an adjustment of spacing of the arms with the platforms, as well. The movement of the platform and the spacing of the arms with the platform are considered relative because they are related and one is necessarily dependent on the other. Figure 2

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of Vowles illustrates a wafer centered on a wafer platform, where placement of the wafer can either be controlled automatically under computer control (i.e. with a pre-selected degree of accuracy) or via manual manipulation (column 4, rows 40-58 of Vowles).

22. With respect to claims 4-5, 7 and 9 which were found to be unpatentable over Vowles in view of Mokuo further in view of Higashi, Higashi is relied upon to teach the use of a coupling system comprising a bellows assembly (Figures 4A and 4B, 17a and 17b; column 3, rows 46-50) and means for securing (column 8, rows 4-11; column 9, rows 25-27) the relative positions of two chambers allowing communication between each of the process chambers and the transfer chamber in a hermetical sealed fashion. Higashi is cited for its teachings of a bellows assembly as a viable coupling system, which also provides positioning flexibility. All other structural limitations of the claimed invention are taught by Vowles and Higashi.

23. With respect to claims 6 and 10 which were found to be unpatentable over Vowles in view of Mokuo further in view of Higashi further in view of Press, Press is cited for teaching a bellows assembly comprising a first plate (10) and a second plate (11) with a bellows element (12) sealed between the plates providing for relative movement in the "X", "Y" and "Z" directions (Figures 1A-C) for the purpose of accommodating the three categories of strain to which a bellows assembly can be subjected and to which it is required to accommodate—axial travel, misalignment and angular travel (column 2, rows 59-64). Press further discloses means for rigidly fastening in place such position for the purpose of minimizing the possibility of bellows failure in use (column 1, rows 31-33). In response to applicant's argument that Press is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, the particular problem with which the present claimed invention and Press are concerned is a bellows assembly capable of movement in 3-dimensions.

24. Motivation (with the appropriate citations) for the combinations of references applied against Applicant's invention can be found in paragraphs 6, 11 and 16 of the current office action.

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Conclusion

25. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karla Moore whose telephone number is 703.305.3142. The examiner can normally be reached on Monday-Friday, 8:30am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 703.308.1633. The fax phone numbers for the organization where this application or proceeding is assigned are 703.872.9310 for regular communications and 703.872.9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.308.0661.

km
October 17, 2002


GREGORY MILLS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700